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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,884	07/10/2002	Hidekazu Tanaka	2002 0405 A	6831

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EXAMINER	
SUTHERS, DOUGLAS JOHN	
ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/089,884	TANAKA ET AL.	
	Examiner	Art Unit	
	Douglas Suthers	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 April 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *01/04/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because figures 1, 3, and 5 show multiple signals combining in an unknown manner and do not disclose direction of signal flow. All 3 figures should use arrowheads to denote signal flow. Figure 1 appears to combine signals from items 7 and 5 in an unknown manner and deliver them to item 6. Similarly figure 3 combines items 7 and 8, and figure 5 combines items 7 and 9 without mention of how they are combined, (i.e. added or multiplexed). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konno et al. (US 6122385) in view of Matsushita (JP 7-16299 A).

4. Regarding claim 1, Konno discloses in figure 1 a loudspeaker device comprising: a power amplifier (11) for receiving an input signal via a subtracter (10); a speaker unit (13) for reproducing an output signal of said power amplifier (11); a microphone (14) for detecting acoustic outputs radiated from said speaker unit (13); a microphone amplifier (15) for amplifying an acoustic output signal detected by said microphone (14); and a negative feedback circuit, wherein said negative feedback circuit is formed by connecting an acoustic output signal of said microphone amplifier (15) to said subtracter (10)(path from 15 through 16 and 17 to 10) and at the same time by connecting the acoustic output signal of said microphone amplifier to said subtracter via a high-pass filter (16) (path from 15 through 16 and 17 to 10). Konno also discloses wherein the

cutoff frequency of high-pass filter (16) is matched with the resonance frequency (figure 3).

Konno does not disclose expressly the use of an acoustic pipe.

Matsushita discloses an acoustic pipe (2) coupled in front of the speaker unit (1) for guiding sound waves reproduced by the speaker unit.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the acoustic pipe of Matsushita with the device of Konno. The motivation for doing so would have been to have the signal received by the microphone more naturally reflect those by a listener (in phase) and allow for differing frequency responses for the speaker enclosure. Therefore, it would have been obvious to combine Matsushita with Konno to obtain the invention as specified in the claim 1.

5. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konno et al. (US 6122385) in view of Meyers (US 3798374) and Matsushita (JP 7-16299 A).

6. Regarding claim 3, Konno discloses in figure 1 a loudspeaker device comprising: a power amplifier (11) for receiving an input signal via a subtracter (10); a speaker unit (13) for reproducing an output signal of said power amplifier (11); a microphone (14) for detecting acoustic outputs radiated from said speaker unit (13); a microphone amplifier (15) for amplifying an acoustic output signal detected by said microphone (14); and a negative feedback circuit, wherein said negative feedback circuit is formed by

connecting an acoustic output signal of said microphone amplifier (15) to said subtracter (10)(path from 15 through 16 and 17 to 10). Konno also discloses wherein the cutoff frequency of high-pass filter (16) is matched with the resonance frequency (figure 3).

Konno does not disclose expressly the use of an acoustic pipe or the use of multiple filters.

Matsushita discloses an acoustic pipe (2) coupled in the front of the speaker unit for guiding sound waves reproduced by the speaker unit.

Meyers discloses in figure 1, a feedback circuit with an equalizer (70). Meyers also expressly discloses that more elaborate equalizers may be used to closer approximate the frequency characteristics. Also the use of –6dB/octave and -12dB/octave high-pass filters are well known in the art. Therefore it would be obvious to one skilled in the art to further comprise wherein said negative feedback circuit is formed by connecting an acoustic output signal of said microphone amplifier to said subtracter via –6dB/oct. high-pass filter and a –12dB/oct. high-pass filter connected in parallel.

At the time of the invention it would have been obvious to a person of ordinary skill in the art use the acoustic pipe of Matsushita and the filter of Meyers in the device of Konno. The motivation for doing so would have been to have the signal received by the microphone more naturally reflect those by a listener (in phase) and allow for differing frequency responses for the speaker enclosure. Therefore, it would have been obvious to combine Matsushita and Meyers with Konno to obtain the invention as specified in the claim 3.

7. Regarding claim 4, Konno discloses in figure 1 a loudspeaker device comprising: a power amplifier (11) for receiving an input signal via a subtracter (10); a speaker unit (13) for reproducing an output signal of said power amplifier (11); a microphone (14) for detecting acoustic outputs radiated from said speaker unit (13); a microphone amplifier (15) for amplifying an acoustic output signal detected by said microphone (14); and a negative feedback circuit, wherein said negative feedback circuit is formed by connecting an acoustic output signal of said microphone amplifier(15) to said subtracter (10)(path from 15 through 16 and 17 to 10). Konno also discloses wherein the cutoff frequency of high-pass filter (16) is matched with the resonance frequency (figure 3).

Konno does not disclose expressly the use of an acoustic pipe or the use of multiple filters.

Matsushita discloses an acoustic pipe (2) coupled in the front of the speaker unit (1) for guiding the sound waves.

Meyers discloses in figure 1, a feedback circuit with an equalizer (70). Meyers also expressly discloses that more elaborate equalizers may be used to closer approximate the frequency characteristics. Also the use of –6dB/octave low-pass and -12dB/octave high-pass filters are well known in the art. Therefore it would be obvious to one skilled in the art to further comprise wherein said negative feedback circuit is formed by connecting an acoustic output signal of said microphone amplifier to said subtracter via –6dB/oct. low-pass filter and a –12dB/oct. high-pass filter connected in parallel.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to add the acoustic pipe of Matsushita and the filter of Meyers. The motivation for doing so would have been to have the signal received by the microphone more naturally reflect those by a listener (in phase) and allow for differing frequency responses for the speaker enclosure. Therefore, it would have been obvious to combine Matsushita and Meyers with Konno to obtain the invention as specified in the claim 4.

Response to Arguments

8. Applicant's arguments filed January 4th, 2006 have been fully considered but they are not persuasive.

The objections to the drawings still stand, as they do not clearly show the details of the invention.

Regarding claim 1, applicant argues that the references would not suggest the high pass filter to have a cutoff frequency matched with the resonant frequency of the acoustic pipe. However Konno teaches a cutoff frequency matching a resonant frequency of the received signal regardless of the structure. Regarding applicants arguments that material 3 or Matsushita would negate the motivation for setting the cutoff frequency at resonance, the examiner would like to point out that not all embodiments use material 3.

Regarding claim 2, applicant's cancellation has been noted and is removed from consideration.

Regarding claims 3 and 4, the examiner would like to point out that an equalizer generally comprises multiple filters and may give various frequency responses as above.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas Suthers whose telephone number is (571)272-0563. The examiner can normally be reached on 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PRIMARY EXAMINER